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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,420	06/14/2006	Yoshihiro Goto	1141/76407	1687

23432 7590 09/10/2010

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EXAMINER	
HEIDEMANN, JASON E	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
09/10/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,420	GOTO, YOSHIHIRO	
	Examiner	Art Unit	
	Jason Heidemann	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 July 2010_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-9,12-14, 16-19_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-9,12-14 and 16-19_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _14 June 2006_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _07/20/2010_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This is the first Office action on the merits of Application No. 10/583420 filed on 06/14/2006. Applicant has filed a request for continued examination under 37 CFR 1.114, and has by amendment filed on 06/20/2010, canceled Claims 10, 11, 15 and 20, amended claims 1, 12, 13, 14, and 16, 19. Claims 1-9, 12-14 and 16-19 are currently pending upon entry of this Amendment, with claims 1, 14 and 19 being in independent form.

2. Regarding Claim 1 is drawn to a process/method of region extraction method for extracting a specified region in an image by us of an image processing apparatus, the various steps of claim 1, all of which are central to the purposes of the invention, could not be reasonably performed without the use of a cooperating programmed computer/processor. Claim 1 and its dependents pass the machine-or-transformation test *(In* re Bilski) and region extraction is not an abstract idea, therefore Claim 1 and its dependents are statutory.

3. Regarding Claim 14 is drawn to a process/method of region extraction method for extracting a specified region in an image by us of an image processing apparatus, the various steps of claim 14, all of which are central to the purposes of the invention, could not be reasonably performed without the use of a cooperating programmed computer/processor. Claim 14 passes the machine-or-transformation test *(In* re Bilski) and region extraction is not an abstract idea,

therefore Claim 14 is statutory.

4. Regarding Claim 19, the claim is in a system claim, and is statutory since it means plus language, and given the broadest reasonable interpretation of claim 19 in light of the specification and consistent with a conclusion reached by one of ordinary skill in the art, the claimed region extraction device is construed by the examiner as software (or computer program) residing and running on one or more hardware based devices, such as a computer or one or more computer components.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/20/2010 has been entered.

Priority

This application claims benefit of a National Stage Application No. PCT/JP04/18796, filed 12/16/2004.

This application claims benefit of foreign priority under 35 U.S.C. 119(a-d) of a Japanese patent application, JP 2003-417842, filed 12/16/2003.

Receipt is acknowledged of papers submitted under 35 U.S.C. 11 9(a)-(d), which papers have been placed of record in the file.

Examiner's Note

Examiner has cited particular columns and line numbers or figures in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

A.) Claims 1-9, 12-14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al. ("Effect of Black Blood MR Image Quality on Vessel Wall Segmentation", Magnetic Resonance in Medicine 46, pages 299–304 (2001), hereinafter Thomas) in view of Staib et al. (Parametrically Deformable Contour Models, IEEE Computer Society Conference on Computer Vision and Pattern Recognition. San Diego, 1989, pp. 427–430 hereinafter Staib)

As to Claim 1, Thomas discloses a region extraction method for extracting a specified region in an image (**Thomas, Abstract, Fig.2, Section Segmentation Algorithm, pages 300-301**), the method including:

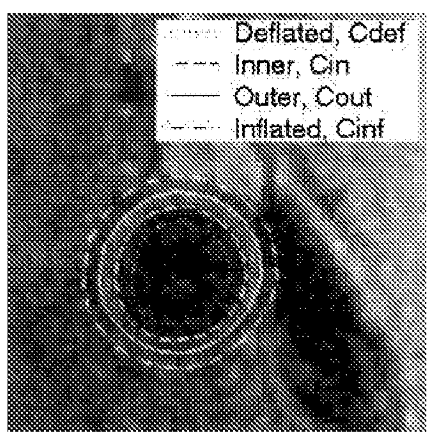

FIG. 2. MR image of the common carotid artery with the two semi-automatically-derived inner and outer wall contours (C_{in} and C_{out}) and the automatically-derived deflated and inflated contours (C_{def} and C_{inf}).

(a) a step for displaying the image (**Thomas, Section Segmentation Algorithm, pages 300-301, given that the operator must interact with the image, (first**

identifies and then crops out the vessel of interest in the given image, that image is inherently displayed);

(b) a step for selecting a desired region in the image (**Thomas, Section Segmentation Algorithm, pages 300-301, an operator first identifies and then crops out the vessel of interest in the given image**); Thomas discloses generating a first inner contour based upon the discrete dynamic contour (DDC) algorithm (**Thomas, Section Segmentation Algorithm, pages 300-301**).

(j) obtaining, by the image processing apparatus, a second closed contour similar to the first closed contour by enlarging or reducing the first closed contour (**Thomas, Section Segmentation Algorithm, pages 300-301, teaches inflating (Enlarging) the first inner contour to create a second (outer) contour**); and (k) extracting, by the image processing apparatus, a region including a stratified region held between the first closed contour and the second closed contour (**Thomas, Section Segmentation Algorithm, pages 300-301, teaches segmenting the region in between the inner and outer contours, see Fig.2**). However, Thomas does not explicitly teach segmenting the first contour by (c) a step for selecting an element graphic corresponding to at least a partial contour of a partial region in the desired region; (d) a step for approximating at least a partial contour of the selected element graphic to at least said partial contour of the partial region; (e) a step for repeating the steps (c) to (d) at least twice, so that at least two selected element graphics overlap with each other; and (f) a step for making a first contour by combining at least said partial contour of the respective element graphics after the approximation

Staib teaches a segmentation algorithm (Parametrically Deformable Contour Models) that uses element graphics (ellipses) to approximate the contour by overlapping the ellipses (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1**), Staib's method overcomes issues found with other segmentation algorithms, where others have a problem of segmenting natural objects whose diversity and irregularity of shape makes
them poorly represented in terms of fixed features or form, the Parametrically Deformable Contour Models have shown good results on a variety of images (**Staib, Page 98, Abstract**) Staib's segmentation method teaches the claimed contour approximation: (c) a step for selecting an element graphic corresponding to at least a partial contour of a partial region in the desired region (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, teaches the use of ellipses to approximate the contour using multiple ellipses)**); (d) a step for approximating at least a partial contour of the selected element graphic to at least said partial contour of the partial region (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition, the ellipses approximate portions of the contour as displayed in Figure 1)**; (e) a step for repeating the steps (c) to (d) at least twice, so that at least two selected element graphics overlap with each other (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, the combination**

of ellipses are used to approximate the entire boundary of the region, Figure 3 shows how the ellipses in combination (overlap) define the entire contour of the region); and (f) a step for making a first contour by combining at least said partial contour of the respective element graphics after the approximation (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 shows how the ellipses in combination (overlap) define the entire contour of the region)**.

It would have been obvious to one of ordinary skilled in the art at the time of inventions to modify the method of Thomas, by replacing the initial inner contour approximation (DDC) method, with the segmentation method (Parametrically Deformable Contour Models) according to the teaching of Staib. The combination has a reasonable expectation of success in that the modifications can be made using conventional and well known engineering and/or programming techniques, the Parametrically Deformable Contour Models taught by Staib is not altered and continues to perform the same function as separately, and the resultant combination produces the highly predictable result of approximating the first inner contour using the Parametrically Deformable Contour Models in the method of Thomas. One of ordinary skilled in the art would have been motivated to combine the teachings of Staib to the method of Thomas in order to use the stratified region extraction algorithm of Thomas's method and then use the segmentation algorithm, Parametrically Deformable Contour Models, as described by Staib to enhance the segmenting of inner contours that exhibit great diversity and irregularity in shape (**Staib, Abstract, Page 98**).

As to Claim 2, the combination of Thomas and Staib teach the region extraction method according to claim 1, wherein the step (c) is for selecting the element graphics passing through a plurality of points being placed on at least a partial contour of the partial region or the vicinity of them (**<u>Staib, Fig.q, as illustrated the element graphics (contours) are passing through a plurality of points on a partial contour of the partial region</u>**).

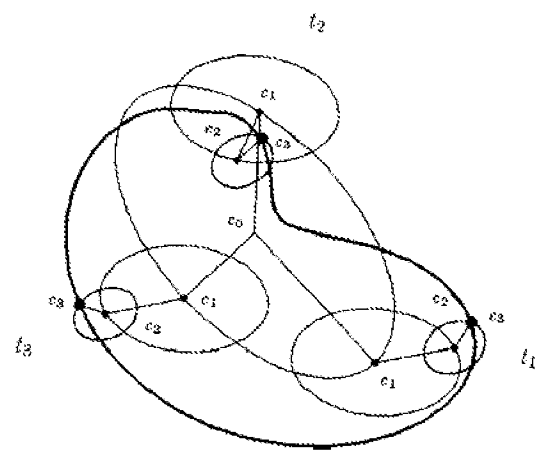

Figure 1: Contour constructed from three ellipses with components shown at three different times.

As to Claim 3, the combination of Thomas and Staib teach the region extraction method according to claim 1, wherein the step (c) is for selecting the element graphics passing through one or more curves being placed on at least a partial contour of the partial region or the vicinity of them (**<u>Staib, Fig.1, as illustrated the element graphics (contours) are passing through a plurality of points on a partial contour of the</u>**

partial region, and the ellipses (element graphic) are either on the partial contour, or in vicinity of them as shown).

As to Claim 4, the combination of Thomas and Staib teach the region extraction method according to claim 1, wherein at least either size or shape of two or more of the plurality of element graphics is different from one another (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 displays the final approximation where the ellipses (element graphic) are of different sizes used in combination to define the entire contour of the region)**.

As to Claim 5, the combination of Thomas and Staib teach the teaches the region extraction method according to claim 1, characterized in that a shape of the element graphic is an ellipse (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3)**.

As to Claim 6, the combination of Thomas and Staib teach the teaches the region extraction method according to claim 5, wherein the approximation is performed in step (d) by changing the position, size or shape of the ellipse by moving the major axis point, minor axis point or center point or the ellipses or rotating the ellipses around the center point (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2,**

Figure 1, describes how the shape, and translation (movement of the center point), rotating can be changed).

As to Claim 7, the combination of Thomas and Staib teaches the region extraction method according the claim 5, wherein the approximation is performed in step (d) by mutually interlocking at least two ellipses (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, and Figure 3 shows how the ellipses in combination (interlocking) define the entire contour of the region)**.

As to Claim 8, the combination of Thomas and Staib teach the region extraction method according to claim 1, wherein the step (c) is for displaying the element graphic with the image, and step (d) is for implementing the approximation of the displayed element graphics on the image (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 displays the final approximation where the ellipses (element graphic) in combination define the entire contour of the region)**.

As to Claim 9, the combination of Thomas and Staib teach the region extraction method according to claim 1, wherein the following steps are included between the step (b) and the step (c):

(g) a step for displaying at least one patterned graphic formed by a plurality of element graphics being combined (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, and Figure 3 shows how the ellipses in combination (interlocking) define the entire contour of the region)**;

(h) a step for selecting the one patterned graphic corresponding to the desired region (**Staib, page 101, left Column, section 5: Results, Paragraph 2, teaches choosing the objects based on there contrast (intensity)**);

(i) a step for displaying at least one of the plurality of element graphics configuring the selected patterned graphic along with the image (**Staib, Fig. 3, displays the initial image along with several processing steps, including the final segmented object**); and in the step

(c), the selection of an element graphic from the displayed element graphics is implemented (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition, so varying shapes and sizes of ellipses are used to approximate the boundary**).

As to Claim 12, the combination of Thomas and Staib teach the region extraction method according to claim 1, wherein the step (j) is for obtaining the second contour by changing a position, size or shape of the element graphics that are used upon obtaining the first contour in the step (f) (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, describes how the shape, and**

translation (movement of the center point), rotating can be changed, where Figure 1, shows the changing in magnification).

As to Claim 13, the combination of Thomas and Staib teach the region extraction method according to claim 1, wherein the step (k) is for extracting one of only the stratified regions, a region on the side of the first contour including the stratified region or a region on the side of the second contour including the stratified region (**Thomas, Section Segmentation Algorithm, pages 300-301, teaches segmenting the region in between the inner and outer contours, see Fig.2**).

As to Claim 19, Thomas teaches a region extraction device (**Thomas, Abstract, Fig.2, Section Segmentation Algorithm, pages 300-301, inherent that it is executed using at least a cpu**), comprising:

a display **means for** displaying an image, (**Thomas, Section Segmentation Algorithm, pages 300-301, given that the operator must interact with the image, (first identifies and then crops out the vessel of interest in the given image, that image is inherently displayed**);

an input **means for** receiving a selection of a desired region in the image (**Thomas, Section Segmentation Algorithm, pages 300-301, an operator first identifies and then crops out the vessel of interest in the given image**);

a calculating **means for** executing a desired image processing relating to the image, Thomas discloses generating a first inner contour based upon the discrete

dynamic contour (DDC) algorithm (**Thomas, Section Segmentation Algorithm, pages 300-301**) wherein:

obtains a second closed contour similar to the first closed contour by enlarging or reducing the first closed contour (**Thomas, Section Segmentation Algorithm, pages 300-301, teaches inflating (Enlarging) the first inner contour to create a second (outer) contour**), and extracts a region including at least a stratified region held between the first closed contour and the second closed contour (**Thomas, Section Segmentation Algorithm, pages 300-301, teaches segmenting the region in between the inner and outer contours, see Fig.2**). However, Thomas does not explicitly teach an input **means for** selection of an element graphic corresponding to at least a partial contour of a partial region in the desired region, the input means receiving at least two selections of element graphics; and displaying a plurality of element graphics along with the image.

Staib teaches a segmentation algorithm (Parametrically Deformable Contour Models) that uses element graphics (ellipses) to approximate the contour by overlapping the ellipses (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1**), Staib's method overcomes issues found with other segmentation algorithms, where others have a problem of segmenting natural objects whose diversity and irregularity of shape makes
them poorly represented in terms of fixed features or form, the Parametrically Deformable Contour Models have shown good results on a variety of images (**Staib,**

Page 98, Abstract) Staib's segmentation method teaches the claimed contour approximation: selection of an element graphic corresponding to at least a partial contour of a partial region in the desired region, (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, teaches the use of ellipses to approximate the contour using multiple ellipses)**); receiving at least two selections of element graphics (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition, the ellipses (more than two) approximate portions of the contour as displayed in Figure 1)**; displaying a plurality of element graphics along with the image (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, the combination of ellipses are used to approximate the entire boundary of the region, Figure 3 shows how the ellipses in combination (overlap) define the entire contour of the region**).

It would have been obvious to one of ordinary skilled in the art at the time of inventions to modify the system of Thomas, by replacing the initial inner contour approximation (DDC) method, with the segmentation method (Parametrically Deformable Contour Models) according to the teaching of Staib. The combination has a reasonable expectation of success in that the modifications can be made using conventional and well known engineering and/or programming techniques, the Parametrically Deformable Contour Models taught by Staib is not altered and continues to perform the same function as separately, and the resultant combination produces the

highly predictable result of approximating the first inner contour using the Parametrically Deformable Contour Models in the method of Thomas. One of ordinary skilled in the art would have been motivated to combine the teachings of Staib to the system of Thomas in order to use the stratified region extraction algorithm of Thomas's system and then use the segmentation algorithm, Parametrically Deformable Contour Models, as described by Staib to enhance the segmenting of inner contours that exhibit great diversity and irregularity in shape (**<u>Staib, Abstract, Page 98</u>**).

With respect to Claim 14, it includes essentially the same limitations as Claims 1 respectively as addressed above. With the expectation of a device, however, the combination of Thomas and Staib further teaches a device for processing the method as recited in Claims 1 respectively (**<u>Thomas, Abstract, demonstrate the algorithm as performed on a cpu</u>**)

B. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Thomas and Staib as applied to claim 1 above, and in further view of Barequet et. al (Piecewise-Linear Interpolation between Polygonal Slices, Proceedings of the tenth annual symposium on Computational geometry, Stony Brook, New York, 1994, pages 93 – 102. herein after Barequet).

As to Claim 16, the combination of Thomas and Staib teach the region extraction method according to claim 1. However, the combination of Thomas and Staib is silent to

in the case there is a plurality of images, wherein the following steps are included after tile step (k): (u) a step for changing the image and repeating the steps (a).about.(k) at least twice; (v) a step for synthesizing 3-dimensional regions using the extraction region on each of the images.

Barequet specifically discloses, in the case there is a plurality of images, **(Barequet, Section 2, paragraph 1, lines 1-5, where parallel planar slices are read as images)**, (v) a step for synthesizing 3-dimensional regions using the extraction region on each of the images **(Barequet, Section 2, 3. Reconstructing the surface, lines 1-4, where examiner interprets stitching contour portions for surface reconstruction as synthesizing 3-dimensional regions as also interprets contour portion as extracted region)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Barequet with the teachings of the combination of Thomas and Staib for improved contour estimation by avoiding “the introduction of counter-intuitive bridges between contours.” **(Barequet, abstract, lines 16-18).**

As to claim 17, the combination of Thomas, Staib, and Barequet discloses the method according to claim 16, further disclosing, in the case that the plurality of images are tomographic images being mutually different slices, **(Barequet, Section 2, lines 1-5, because the slices are parallel they are mutually different)**, wherein the following step is included between the steps (u) and (v): (w) a step for obtaining the first contour, **(Barequet, Section 2, lines 1-5, where the first slice in the pair with a polygonal**

contour is read as a "first contour"), the second contour and the stratified region, of the region where the first contour was not able to be obtained, **(Barequet, Section 2, lines 1-5, where the second slice in the pair with a polygonal contour is read as a "second contour" and the area between the pair of slices is read as the stratified region, further both the second contour and the stratified region are where the first contour was not able to be obtained since they are parallel to the first contour),** based on the first contour in the slice of which the first contour was able to be obtained. **(Barequet, Section 2, 3. Reconstructing the surface, lines 1-4, the stratified region depends on the reconstruction between the first and second contour is constrained to be parallel to the first contour so they are both based on the first contour).**

As to claim 18, the combination of Thomas, Staib, and Barequet discloses the method according to claim 16, further disclosing, in the case that the plurality of images are the tomographic images being mutually different slices, **(Barequet, Section 2, lines 1-5, because the slices are parallel they are mutually different**), wherein the following step is included between the steps (u) and (v): (x) a step for obtaining the stratified region of the region where the stratified region was not obtained, (**Barequet, Section 1, paragraph 15, lines 3-6, the band is a stratified region where one had not been obtained**), based on the stratified region in the slice of which the stratified region was obtained. (**Barequet, Section 1, paragraph 15, lines 6-11, the original**

contours is interpreted by the examiner to be where a stratified region was obtained).

Request for Information - 37 CFR 1.105

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application: The examiner has determined that the elements of claim 1 are pertinent to patentability. The submission of the following prior art, if know to the applicant or the assignee is requested: Prior art teachings of approximating a contour using overlapping element graphics.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jacob et al., US 2004/0125997 A1, Method for processing an image sequence of a distortable 3-d object to yield indications of the object wall deformations in time. Examiner believes this to be of importance with respect to the independent Claims, specifically the segmentation of stratified regions.

Gerard al., US 20030006984 A1, Image processing method for displaying an image sequence of a deformable 3-D object with indications of the object wall motion. Examiner believes this to be of importance with respect to the independent Claims, specifically the segmentation of stratified regions.

Pathak et al US 5795296 A Pipeline process for automatically measuring object boundary from ultrasound image samples. Examiner believes Figure 10 is of importance with respect to the independent Claims, see elements 62, 84, 86, 64, where the outer boundary is based upon the expanded curve of the inner boundary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Heidemann whose telephone number is (571)-270-5173. The examiner can normally be reached on Monday - Thursday/7:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300

for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Heidemann/
Examiner, Art Unit 2624

09/08/2010

/Sath V. Perungavoor/

Sath V. Perungavoor
Primary Examiner, Art Unit 2624
Dated: September 10, 2010